

In the claims:

Please substitute the following full listing of claims for the claims as originally filed or most recently amended.

1. (Previously Presented) An optical system comprising a camera comprising a camera objective and means for focusing an image, and

a doubly telecentric optical system including a mirror, wherein the back focal plane of the mirror is coincident with the front focal plane of the camera objective, and wherein the doubly telecentric optical system includes an aperture at the juncture of the back focal plane of said mirror and the front focal plane of the camera objective

whereby well-focused images of substantially constant magnification and resolution are produced over a range of distances of objects from said mirror.

2. (Original) The optical system of claim 1, wherein the camera includes means for shifting a location of an image sensor.

3. (Original) The optical system of claim 1, wherein the doubly telecentric optical system includes a curved concave mirror or mirror strip as an objective element thereof.

4. (Original) The optical system of claim 3, wherein the curved concave mirror or mirror strip is spherical.

5. (Original) The optical system of claim 3, wherein the curved concave mirror or mirror strip is aspherical.

6. (Original) The optical system of claim 3, wherein said curved mirror is a mirror strip.

7. (Previously Presented) The optical system of claim 3, wherein the camera includes means for shifting a location of an image sensor.

8. (Previously Presented) The optical system of claim 1, wherein the camera includes a sensor of a line scan variety.

9. (Previously Presented) The optical system of claim 1, wherein the camera includes a sensor of an area scan variety.

10. (Previously Presented) An optical system as recited in claim 7, wherein said means for shifting a location of said image sensor includes means responsive to a distance between said objective element and an object to be imaged.

11. (Original) The optical system of claim 1, wherein an objective lens of said camera is a secondary objective of said doubly telecentric optical system.

12. (Currently Amended) A machine vision controlled system including

a controllable means for performing a function,
a doubly telecentric optical system having a concave mirror as an objective element thereof, and a camera wherein the back focal plane of the mirror is coincident with the front focal plane of an objective lens of the camera and wherein the doubly telecentric optical system includes an aperture at the juncture of the back focal plane of the mirror and the front focal plane of the objective lens of the camera, said camera including means for shifting a location of an image sensor, and

means for processing data derived from said image sensor to control said controllable means.

whereby well-focussed images of substantially constant magnification and resolution are produced over a range of distances of objects from said mirror.

13. (Original) A machine vision system as recited in claim 12, further including

means for controlling said means for shifting a location of said image sensor responsive to a distance between said objective element and an object to be imaged.

14. (Original) A machine vision controllable system according to claim 12 wherein the controllable means includes an optical character recognition system.

15. (Original) A machine vision controllable system according to claim 12, wherein the optical character recognition system includes at least one conveyor for transporting articles for view by the doubly telecentric optical system.

16. (Original) A machine vision controllable system according to claim 12, wherein the optical character recognition system includes at least one planar mirror.

17. (Original) A machine vision controllable system according to claim 12, wherein the optical character recognition system includes a focus detection arrangement.

18. (Currently Amended) A sorting method for articles having visible information on a face of each said article, wherein said articles may be irregularly sized, comprising the steps of:

moving, by automation, each article to a doubly telecentric optical system including a camera, wherein the back focal plane of the mirror is coincident with the front focal plane of an objective lens of the camera and wherein the doubly telecentric optical system includes an aperture at the juncture of the back focal plane of the mirror and the front focal plane of the objective lens of the camera, said camera including means for shifting a location of an image sensor, then imaging the visible information on each article at substantially constant magnification and resolution whereby well-focused images of substantially constant magnification and resolution are produced over a range of distances of faces of said irregularly sized objects from said mirror.

19. (Original) The sorting method of Claim 18, wherein said visible information is a zip-code.